

Relative Abundance of *Macrotus californicus* Occupying An Abandoned House



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Introduction



Objective and Significance



- ❧ Calculate relative abundance
- ❧ Residents for 10+ years
- ❧ Day roost, night roost, and courtship site
- ❧ No prior documentation



Macrotus californicus

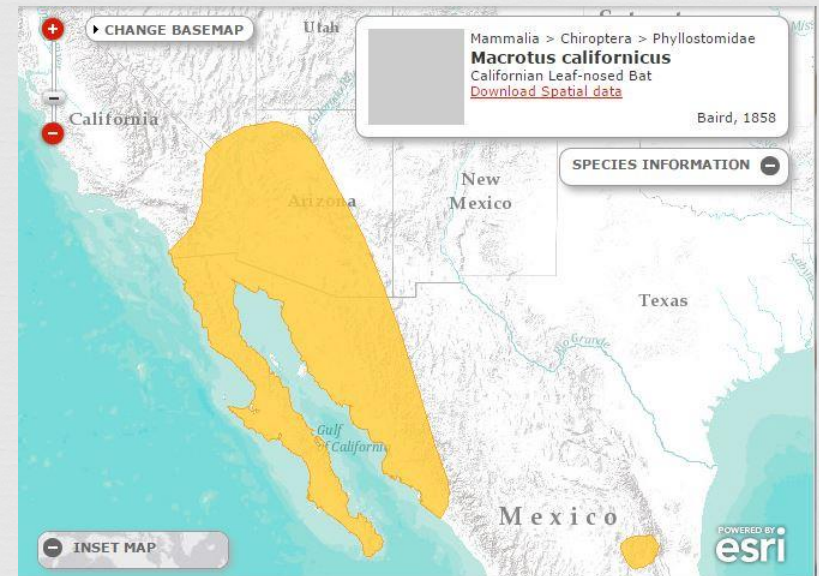
California leaf-nosed bat

Status & Distribution

LCR MSCP Range

- ❧ Species of Special Concern - BLM CA, AZGFD
- ❧ Evaluation Species – LCR MSCP
- ❧ Species of Red/High priority - WBWG

IUCN Species Range



Habitat & Foraging Requirements

- ❧ Need warm mine/cave

- ❧ May use bridges, shallow prospects, or buildings for *night* roost

 - ❧ Building – Searchlight, NV (1937)

 - ❧ Stage Station – Vallecito, CA (1953)

- ❧ Desert wash & riparian areas

 - ❧ First 3 hours after sunset & last 2 hours before sunrise

- ❧ Gleaners

- ❧ Echolocation

- ❧ Vision

- ❧ Hearing

Diet



Reproduction

- ❧ Spring/Summer – Maternity Colonies
- ❧ Mid-May to early July – Births
- ❧ Fall – Lekking and Breeding
- ❧ Fertilization at copulation
 - ❧ Delayed development



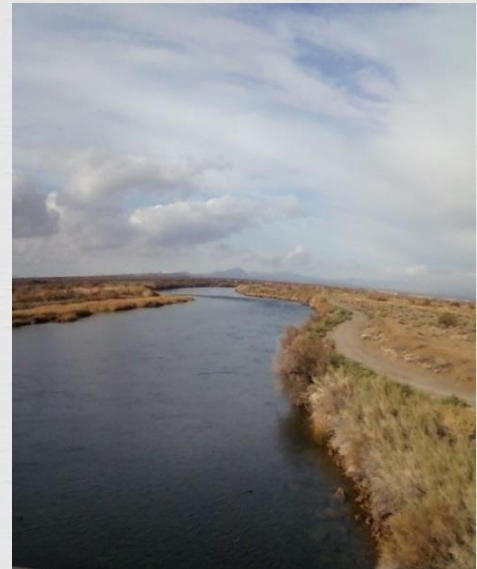
Methods



Barrack, House, Roost



Survey Site



Survey Method: Exit Counts

OUT



IN



Sunset – 9:00PM

Equipment



- ❧ Night Vision Equipment
- ❧ 2 Hand Tallies
- ❧ Kestrel Pocket Wind / Weather / Hydrometer
 - ❧ Temperature
 - ❧ Humidity
 - ❧ Average Wind Speed

3 Preliminary Surveys

Figure 1: East-face of house, exits labeled as observed on 10/13/14



Figure 2: North-face of house, exits labeled as observed on 10/25/14



Figure 3: West-face of house, exits labeled as observed on 11/1/14



2 Isolated Surveys

Figure 4: East-face of house, exits labeled as observed on 11/14/14 and 11/21/14

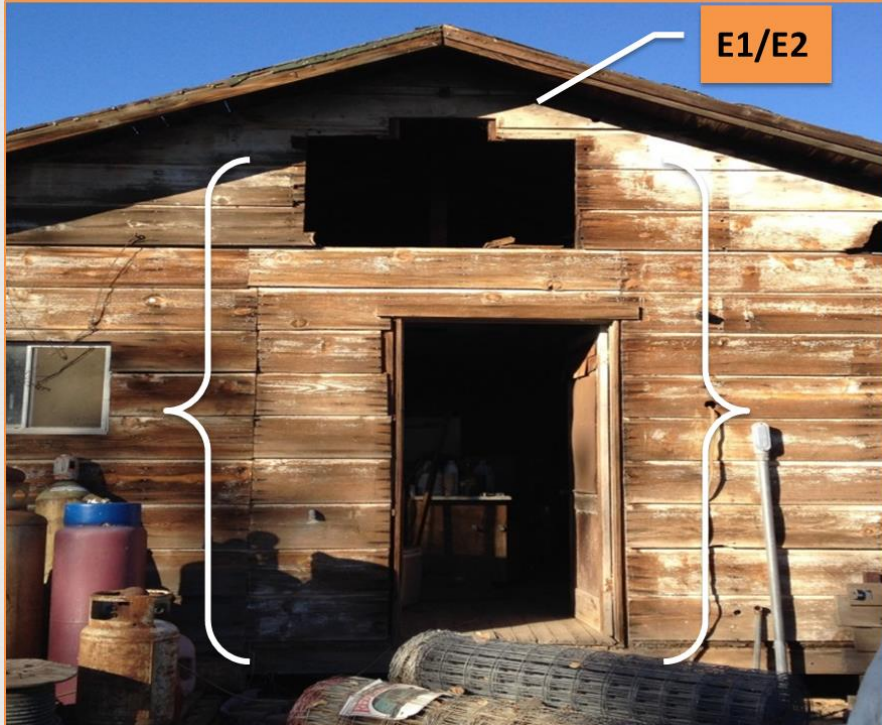
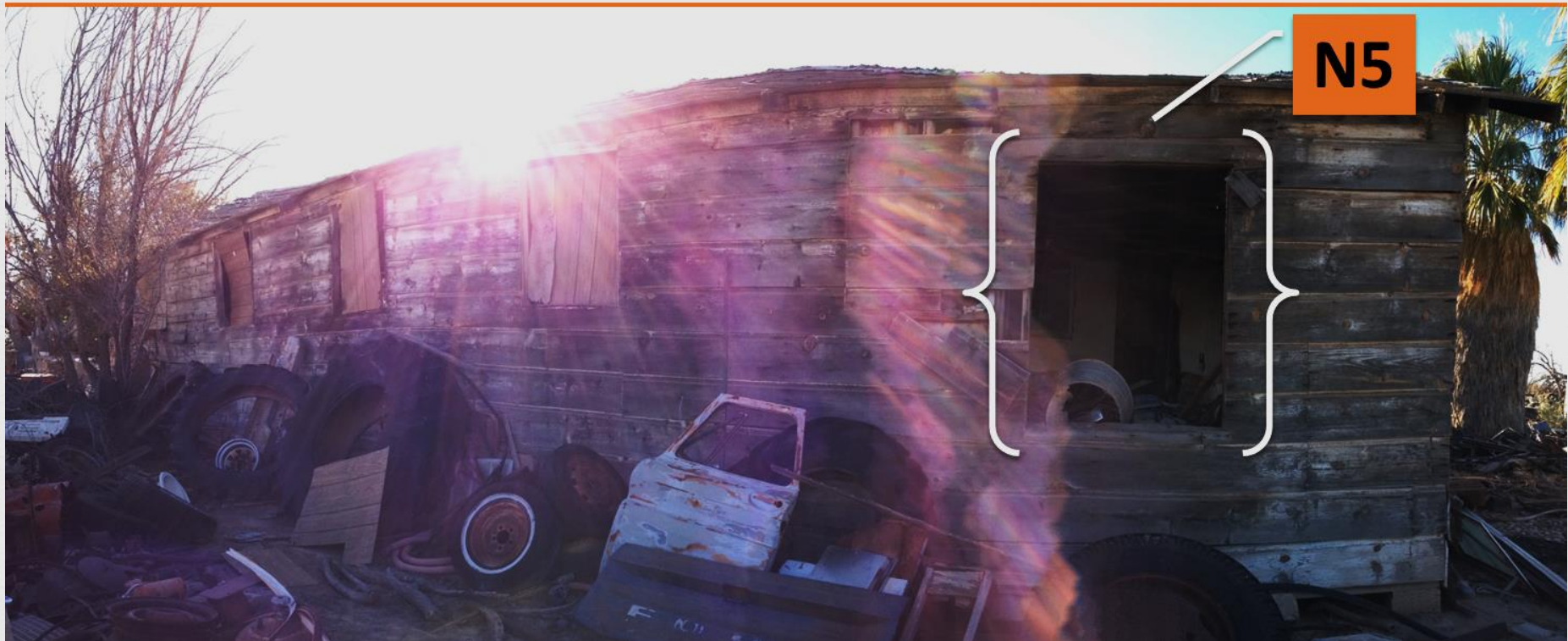


Figure 5: East-face of house, exits labeled as observed on 11/14/14 and 11/21/2014



Isolated Surveys Cont'd

Figure 6: North-face of house, exits labeled as observed on 11/14/14 and 11/21/2014



Results





How many bats
could a wood
house hold if a
wood house
could hold bats?

Table 3: Calculation of Relative Abundance		
Orientation:	In:	Out:
Isolated 1 Total	156	207
Isolated 2 Total	63	94
Average	130	

Discussion



Prime Foraging Area



Mountaineer Mine & 'Ahakhav Tribal Preserve





Roosting *Parastrellus hesperus* (canyon bat)

Determined by Dr. Patricia Brown and Allen Calvert

Factors to Consider



- ⌘ Increased human activity
- ⌘ Multiple counts of same bat
- ⌘ Unknown exits



Further Monitoring

- ❧ Usage during other months
- ❧ Usage of house
 - ❧ Roost
 - ❧ Lekking
- ❧ Temperature inside vs. outside



Acknowledgements

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References

Anderson, S. (1969). *Macrotus waterhousii*. Mammalian species, No. 1, *Macrotus waterhousii*, pp1-4. Stable URL: <http://www.jstor.org/stable/3503913>

Brown, P. E. (1998). *Macrotus californicus* California leaf-nosed bat species account. Western Bat Working Group. Retrieved from: <http://www.wbwg.org>

Brown, E. P. (2010). Roost surveys and monitoring for Lower Colorado River bat species. Lower Colorado River Multi-Species Conservation Program. Retrieved from: http://www.lcrmscp.gov/reports/2011/d9_roost_surv_nov10.pdf.

Herder, M.J. (2003) Monitoring the effectiveness of bat compatible mine gates. Retrieved from: http://www.blm.gov/style/medialib/blm/wo/MINERALS_REALTY_AND_RESOURCE_PROTECTION_/aml.Par.99520.File.dat/MonitoringBatsHerder_BLM.pdf

Krutzsch, P.H. (1954). Notes on the habits of the bat, *Myotis californicus*. *Journal of Mammalogy*, 35,4, pp 539-545. Stable URL: <http://www.jstor.org/stable/1375579>

Ohmart, R.D., Anderson, B.W., and Hunter, W.C. (1988). The ecology of the lower Colorado River from Davis Dam to the Mexico-United States international boundary: a community profile. U.S. Fish Wildlife Service Biological Report, 85(7.19).

Image credit: <http://www.iucnredlist.org/>



QUESTIONS?